CHAPTER 3 WATER SUPPLIES

Both local and imported water supplies are used by the CDA retail water agencies. Local sources include groundwater, surface water, recycled water and recovered groundwater treated by the CDA Desalters. Imported State Water Project (SWP) water is available to these areas through wholesale distribution to local retail agencies within IEUA's and WMWD's service area. The source of MWD's imported water used in the Chino Basin is the State Water Project. This source is used because of the Regional Board's water quality restrictions that prohibit the use of Colorado River water in the Chino Basin.

3.1 CHINO GROUNDWATER BASIN

The Chino I and II Desalters exclusively use groundwater from the southern portion of the Chino Basin. The Chino Basin is the largest groundwater basin in the Upper Santa Ana Watershed. Per *Civil Engineering Magazine, May 2007* (the magazine of the American Society of Civil Engineers), the Chino Basin currently contains approximately 6,000,000 AF of water in storage, with an additional unused storage capacity (based upon historic water levels in the basin) of approximately 1,000,000 AF. About 145,000 acre-feet per year (AFY) is pumped for municipal and industrial purposes. In addition, 300 to 400 agricultural users pump about 40,000 AFY from the Chino Basin. Accordingly, total groundwater production from the Chino Basin is approximately 180,000 AFY. After the CDA's Phase III expansion is completed, it is expected that the two desalters will be pumping around 40,000 AFY, with an 88.0% recovery or approximately 35,200 AFY which will be recovered as product drinking water. New technology is being researched that could increase the percentage recovery to 99.6%, creating extra 4,600 AFY of high quality drinking water.

In June 2000, the Optimum Basin Management Program (OBMP) was adopted by the Chino Basin Watermaster (CBWM) and approved by the member agencies to address water quality problems within the Basin and to increase and improve the water supply available from this source. A more thorough discussion of management of the Chino Basin is contained in Chapter 6 and in the Chino Basin OBMP[1]. The OBMP identifies groundwater recovery in the southern portion of the basin as a way to improve basin water supplies.

As part of the OBMP implementation, the Watermaster has conducted hydro-geologic investigations and collected new data. This data includes a Hydrologic Control Monitoring Program, Land Subsidence investigation, recycled water recharge monitoring, and Watermaster's comprehensive monitoring programs for water quality and water levels.

3.2 AVAILABLE GROUNDWATER SUPPLY

Water rights within the Chino Basin have been adjudicated (1978 Judgment).[2] The safe-yield of the Basin is approximately 145,000 AFY. The safe yield is allocated among three pools as follows: (1) Overlying Agricultural Pool: 82,800 AFY; (2) Overlying Non-Agricultural Pool: 7,366

AFY; and (3) Appropriative Pool: 49,834 AFY.

General trends in groundwater production presented by Wildermuth Environmental Inc. in the *2008 State of the Basin*, prepared for the Chino Basin Watermaster, indicated that there was a basin-wide increase in the number of wells producing over 1,000 AFY by the year 2008. This is consistent with the land use transition from agricultural to urban, the trend of increased imported water cost, and the use of the desalter plants. Since the implementation of the OBMP in 2000, desalter pumping has commenced and has progressively increased. In 2007-08, desalter pumping reached a historical high of 26,972 AF.

The State of the Basin report also indicated that the Agricultural Pool pumping continues to decline. In 2007-08, total production fell by 30,910 AF. In accordance to the hypothesis that urbanization is the cause of decrease agricultural production, Appropriative Pool production tends to increase approximately at the same rate that Agricultural Pool production decreases. During the fiscal year 2005-06, groundwater production from the desalters increased 60 percent from the previous year. This increase is attributed to the Chino 2 Desalter production, which started pumping in April and July 2006. The Chino I Desalter increased its production in June 2007 by increasing its Reverse Osmosis capacity through the addition of more filtering vessels.

Declining ground water level trends in desalter wells and future desalter expansion plans have prompted a reevaluation of future ground water levels from desalter pumping. Since operation commenced, pumping ground water levels in some wells have approached the pump intakes. Continued pumping may require lowering the pump intakes in order to maintain the current individual well discharge rates. Further, additional wells are planned for the Chino I facility (referred to as the Chino Creek Well Field CCWF). The additional pumping will result in further lowering of ground water levels in the desalter well field area. In order to assess future ground water levels in the desalter well field area, a geohydrologic analysis has been conducted using a calibrated ground water flow model. Conclusions generated from analysis of the model results presented in this report are as follows:

- The ground water flow model simulation of future desalter ground water pumping with existing wells only shows ground water level declines, relative to 2007 ground water levels, ranging from 10 ft to 60 ft within existing CDA wells. The greatest additional drawdown is in the easternmost portion of the Chino II desalter well field (Well II-9a).

- The addition of pumping from the proposed Chino Creek well field results in up to 85 ft of additional ground water level drawdown in the western-most existing Chino I wells (I-1 through I-3).

[1] Chino Basin Optimum Basin Management Program, August 19, 1999.

[2] Judgment – Case No. 164327, January 30, 1978, Chino Basin Municipal Water District vs. City of Chino, et.al.

- At the proposed Chino Creek well locations, projected pumping ground water levels (based on assumed specific capacities for the wells) are between approximately 400 and 635 feet below ground surface, suggesting that these wells will need to be deeper than the existing desalter wells in order to accommodate the potential drawdown.

- Given the relatively large drawdown predicted in the eastern portion of the existing Chino II well field, locations for Chino II expansion wells were selected north of the Chino I expansion wells in an area of less anticipated drawdown and where the aquifer thickness is greater in order to accommodate deeper wells with higher potential discharge rates.

- Model simulations of potential desalter pumping scenarios show that increased ground water production from the addition of the Chino Creek and Chino II expansion wells, in the context of potential future ground water production by other pumpers within the Chino Basin, will result in a case of 30 to 90 ft of additional drawdown in the existing Chino Desalter wells. The greatest additional drawdown is predicted for the westernmost Chino I wells.

- Potential impacts from additional future drawdown in the desalter wells could include entrained air in the discharge water, the need to lower the pump settings in selected wells, reduced yield resulting from loss of aquifer thickness, and increased energy costs associated with additional pumping lift.

- Model results show that the pump settings in Wells I-13 through I-15, II-4 and II-9a (Figure 1-3c) may have to be lowered to accommodate future ground water levels in the Chino Desalter area.

- Additional drawdown associated with Chino Desalter pumping may impact existing agricultural pumpers in the immediate vicinity of the Chino Desalter well field area. All potential impacts will need to be addressed on a case by case basis in accordance with CDA's Ground Water Monitoring and Mitigation Plan.

As required by the Peace Agreement and summarized in the OBMP Recharge Master Plan, Watermaster initiated the Chino Basin Groundwater Recharge program; a program to enhance the reliability and improve the groundwater quality of local drinking water wells throughout the Chino Basin by increasing the recharge of storm water, imported water and recycled water.

Per the 2008 State of the Basin Report, the Chino Basin groundwater level analysis for fall 2008 revealed notable pumping depressions in the groundwater level surface that interrupt the general flow pattern surrounding the Chino I & Chino II Desalter well fields. There are also discernible groundwater level depressions in the northern portion of the MZ1 (Montclair and Pomona areas) and directly southwest of the Jurupa Hills due to local groundwater production.

The Watermaster's GIS model estimated storage changes from about -54,000 AF to a -62,000 AF during the period from 2000 to 2008. Production in excess of the safe yield from the groundwater basin must be replaced with replenishment water. In addition to local sources of recycled water and storm water, imported water is purchased from IEUA by the Chino Basin Watermaster (CBWM) to replenish the Chino Basin. It is projected that ultimately fifteen percent of the production water from the Chino Desalters extracted by the desalter wells will come from new induced recharge from the Santa Ana River to the Basin. The induced recharge to the Basin from the Santa Ana River will be the result of the hydraulic control program.[3]

3.3 GROUNDWATER QUALITY IN THE LOWER CHINO BASIN[4]

Groundwater in the lower Chino Basin historically has exceeded State Title 22 mandated objectives for total dissolved solids (salinity or salt) and nitrogen (nitrate). The primary purpose of the CDA plants is to recover this groundwater and treat it with advanced water treatment process to produce potable water.

Total Dissolved Solids (TDS)

In the California Code of Regulations, Title 22, TDS is regulated as a secondary contaminant. The recommended drinking water maximum contaminant level (MCL) for TDS is 500 mg/L; however, the upper limit is 1,000 mg/L. TDS concentrations in the lower Chino Basin generally exceed 500 mg/L as discussed in Chapter 9. Between 2001 and 2006, 26% of the private wells south of the Highway 60 (118) wells had TDS concentrations below the secondary maximum contaminant level (MCL). The CDA treatment facilities 2nd quarter performance report for Fiscal Year 2009-10 shows a TDS reduction of 927 (mg/L) to 342 (mg/L) for the Chino Desalter I, and a reduction of 579 (mg/L) to 306 (mg/L) for the Chino Desalter II. Both desalters have a product water goal of 350 (mg/L) for TDS.

Nitrates

Nitrate is regulated in drinking water by Title 22 with a maximum contaminant level (MCL) of 10 mg/L (as nitrogen). By convention, all nitrate values are reported as nitrate-nitrogen (NO3-N) in this document. Hence, the values of nitrate-nitrogen reported in this document should be compared with an MCL of 10 mg/L. About 80% of the private wells south of Highway 60 had nitrate concentrations greater than the MCL. The 2nd quarter performance report for Fiscal Year 2009-10 indicates that the Chino Desalter I treated raw water with nitrates levels of 201 (mg/L), reducing it to 17 (mg/L).

[3] Chino Basin Optimum Basin Management Program, State of the Basin Report 2008 (November 2008)

[4] Chino Basin Optimum Basin Management Program, State of the Basin Report 2008 (November 2008)

The Chino Desalter II showed raw water with 91 (mg/l) of nitrates, producing water with Nitrate levels of 19 (mg/L). Both Desalter facilities have a product water goal of 25 (mg/L) for nitrates.

In particular, areas east of the Puente and Chino Hills, south of the Jurupa Hills, along the Santa Ana River, and down-gradient from the former RP-1 discharge point have elevated nitrate concentrations. Nitrate concentrations in the southern part of the basin typically exceed the 10 mg/L MCL and frequently exceed 20 mg/L.

Volatile Organic Chemicals (VOCs)

Volatile organic chemicals (VOCs) are among other constituents of potential concern in the groundwater of the Chino Basin. The following five VOCs were detected at or above their MCL in more than 10 wells:

a) Trichloroethylene

b) Tetrachloroethylene/Perchloroeth
ylene (PCE)

c) 1,2,3-Trichloropropane (TCP)

Tetrachloroethene (PCE) and Trichloroethene (TCE)

PCE and TCE are widely used in industrial solvents; PCE is commonly used in the dry-cleaning industry. TCE is commonly used for degreasing metals. Both chemicals are found in the Milliken Landfill, south and west of the Ontario Airport and along the margins of the City of Chino Hills. These chemicals have also been found in wells around the Stringfellow Plume. These two chlorinated solvents are considered carcinogenic with a drinking water limit of 5 ppb MCL.

Dichloroethene and cis-1,2-dichloroethene

Dichloroethene, and cis-1,2-dichloroethene are degradation by-products of PCE and TCE (Dragun, l988) formed by the reductive dehalogenation. In the majority of wells of the Chino Basin, Dichloroethene and cis-1,2-dichloroethene are not found. Dichloroethene is found in groundwater near the Milliken Landfill, south and west of the Ontario Airport, and at the head of the Stringfellow plume.

1,2,3-Trichloropropane

1,2,3-Trichloropropane (1,2,3,-TCP) is a colorless liquid that is used primarily as a chemical intermediate in the production of polysulfone liquid polymers and dichloropropene, synthesis of hexafluropropylene, and as a cross linking agent in the synthesis of polysulfides. 1,2,3-TCP is found in the Chino Airport VOC plume. In addition, there is a cluster of wells that have 1,2,3-TCP in concentrations greater than the CDPH "Notification Level" north of the Chino Airport and a scattering of wells exceed the Notification Level on the western margins of the basin. TCP is an unregulated contaminant for which monitoring is required (UCMR). The drinking water limit for TCP is 0.005 ppb. Figures 3.1 and 3.2 show projected TCE and TCP concentrations through

2056. These figures are the results of a VOC study conducted by Wildermuth Environmental Inc. July 2008.

There are also other known point source releases of contaminants such as perchlorate (MVSL area) as well as what it appears to be non-point source related perchlorate contamination from currently undetermined sources. Arsenic at levels above the water quality standards (WQS) appears to be limited to the deeper aquifer zone near the City of Chino Hills. Total chromium and hexavalent chromium, while currently not a groundwater issue for Chino Basin, could become so, according to future quality standards.

Figure 3.1 TCE Concentrations

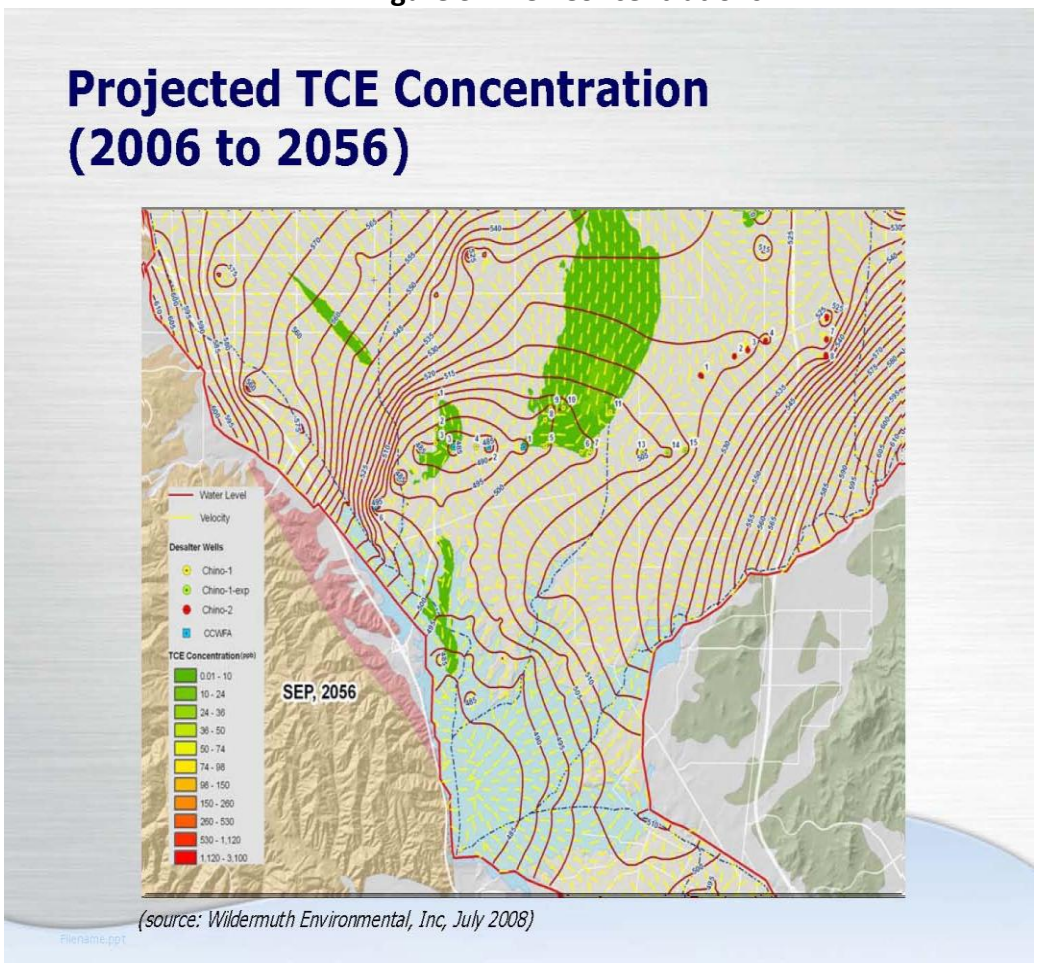


Figure 3.2 TCP Concentrations

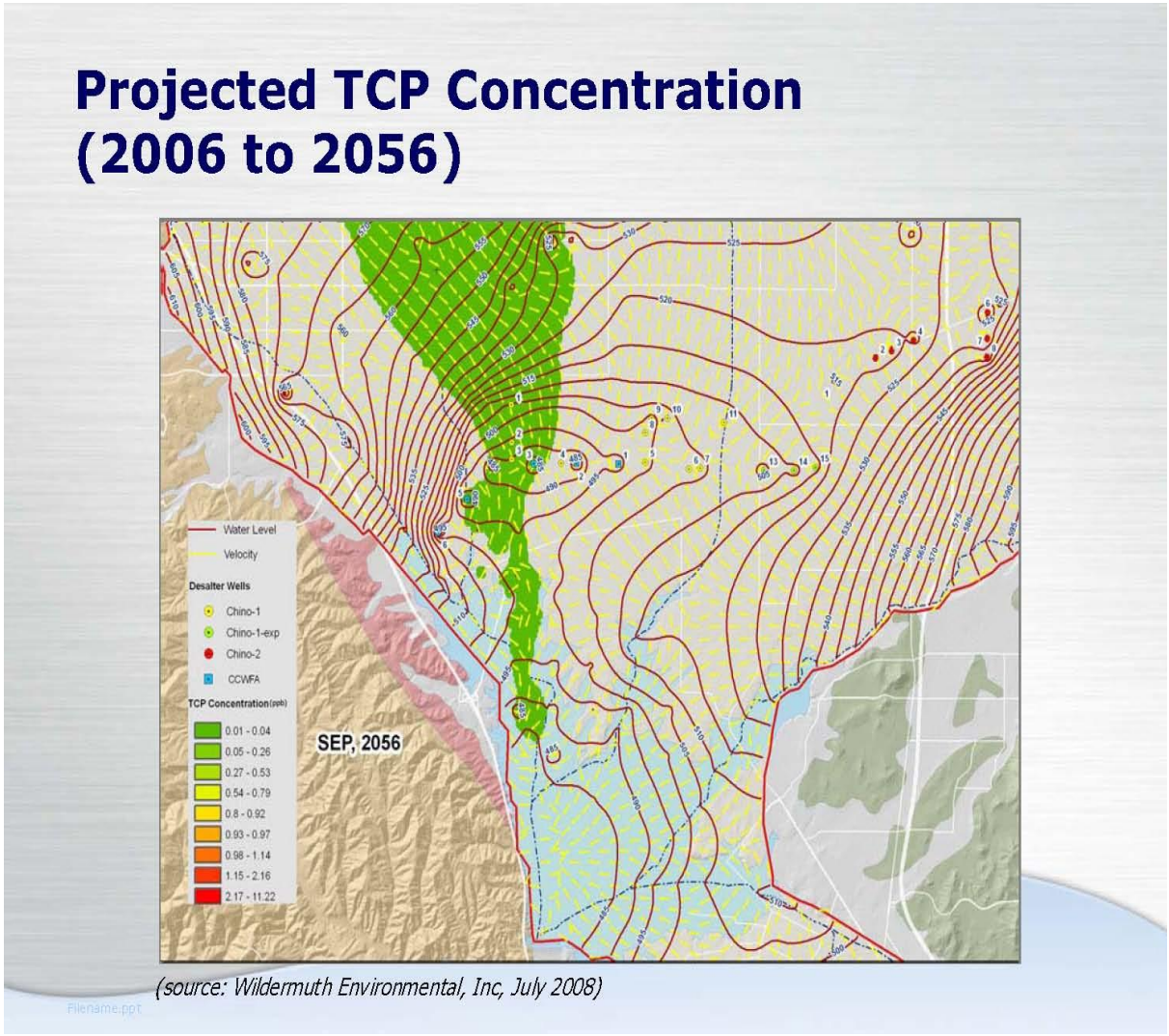
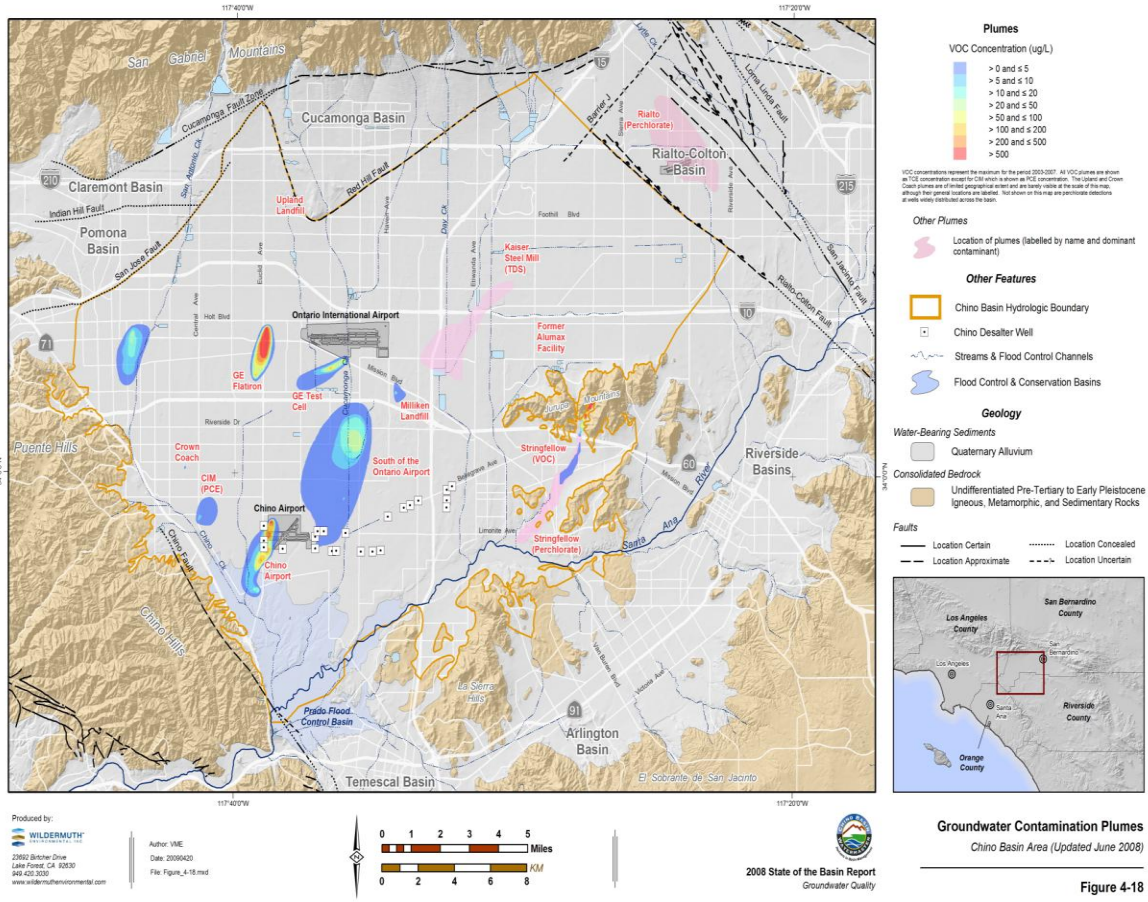


Figure 3-3 VOC Plumes



3.4 CHINO BASIN DESALTER AUTHORITY FACILITIES & OPERATION

The Chino Desalter Authority operates two desalter facilities (Chino I and Chino II) that are supplied water from 22 wells (14 feeding the Chino I facility and 8 feeding the Chino II facility). The CDA is considered to be part of the Appropriative Pool with water rights of approximately 49,834 AFY. The Chino Basin Desalter Project benefits the Chino Basin by; 1) providing a local source of potable water, 2) improving the quality of groundwater by removing salt and nitrates, and 3) reducing contamination of the Santa Ana River. The projected ultimate development of the Chino Basin Desalter Program will produce 35,200 AFY of potable water; and extract an estimated 54,000 tons of salt from the Chino Basin aquifers annually. It will also stop migration of groundwater out of Chino Basin into the Santa Ana River. As a result, the program will clean up the area's groundwater and protect surface water while helping to meet the increased potable water demands in the lower Chino Basin.[1]

[1] Chino Basin Optimum Basin Management Program, State of the Basin Report 2004 (July 2005)

Table 3-1 Chino Basin Desalters Projected Production of Product Water (AFY)

Desalter	Year Constructed	2000	2005	2010	2015	2020	2025	2030	2035
[1] Chino 1	2000	9,000	15,900	14,200	14,200	14,200	14,200	14,200	14,200
[2] Chino 2	2005	0	0	10,400	21,000	21,000	21,000	21,000	21,000
Total AFY		**9,000**	**15,900**	**24,600**	**35,200**	**35,200**	**35,200**	**35,200**	**35,200**

[1] Chino I became operational in 2001

[2] Chino II became operational in 2006

Table 3-1 lists the respective phases of the Chino Basin Desalter Program and presents the planned production volume. The Chino I Desalter was originally built in 2000 and was expanded (2005) by adding extra Reverse Osmosis treatment capacity. The Chino II Desalter was constructed and became operational in the summer of 2006 and is currently undergoing an expansion that will produce an extra 10,600 AFY. The values shown in Table 3-1 represent nominal treatment system production values.

Initial Implementation

SAWPA served as the initial contracting entity for the construction of the Chino I Desalter and drilled the initial eleven extraction wells. When the Chino Desalter Authority (CDA) was first organized on September 25, 2001, the CDA contracted with IEUA to take over the operation of the facility. IEUA currently operates/maintains the Chino I Desalter and the associated groundwater extraction wells, and JCSD operates/maintains the Chino II Desalter and maintains the associated groundwater extraction wells.

Chino I Desalter – Current Operations

The Chino I Desalter, located at 6905 Kimball Avenue in Chino, California, was the beginning component of the innovative Chino Basin Desalination Program. When the Chino I Desalter was commissioned and began operations in the summer of 2000, it had a capacity of 9,000 AFY. The initial 11 extraction wells delivered brackish water to the Chino I Desalter. The reverse osmosis (RO) system treats 76% of the well extraction, producing 6.7-mgd of permeate (product) water, which is then blended with up to 4.9-mgd of Ion Exchange effluent (product water), and approximately 2-mgd of well water treated for VOCs, producing a monthly average of 12.3-mgd of water or (in FY-2008-09) 13,500 AFY of potable water that is delivered to the cities of Chino and Chino Hills and Jurupa Community Services District (JCSD). Concentrated brine from the RO process is discharged to the Inland Empire Brine Line (IEBL) as non-reclaimable water (NRW) and is conveyed to the Orange County Sanitation District (OCSD) for treatment and ultimate disposal in the Pacific Ocean.

Brine disposal exports approximately 10,000 tons per year of salt from the Chino Basin. The Chino 1 Desalter was expanded in 2005; this expansion also increased the IEBL discharge to 1.92-mgd for FY 2009-10.

The initial treatment processes employed at the Chino 1 Desalter were:

1. Pretreatment
2. Filtration
3. Reverse osmosis
4. Disinfection
5. Disposal of concentrated brine, and
6. Blending of product water, followed by
7. Distribution

After plant upgrades were completed, the system includes Ion Exchange Technologies, VOC removal by air stripping, and raw water blending.

Actual historical production of groundwater treated at the Chino 1 Desalter is tabulated in Table 3-2a, between the years 2001 and 2005 and 3-2b between the years 2005 and 2010.

Table 3-2a Historic Production from Chino I Desalter

Agency	Contract Value (AFY)	2001 [1]	2002	2003	2004	2005 YTD[2]
City of Chino	5,000	1,450	3,476	2,853	2,697	2,164
City of Chino Hills	4,200	746	2,318	1,855	1,353	1,116
City of Ontario	5,000	0	0	0	0	0
Subtotal IEUA	**14,200**	**2,196**	**5,794**	**4,708**	**4,050**	**3,280**
Jurupa CSD	8,200	1,292	4,422	3,833	4,515	3,007
SARWC	1,200	0	0	0	0	0
City of Norco	1,000	0	0	0	0	0
Subtotal WMWD	**10,400**	**1,292**	**4,422**	**3,833**	**4,515**	**3,007**
Totals AFY	**24,600**	**3,488**	**10,216**	**8,541**	**8,565**	**6,287**

Table 3-2b Historic Production from Chino I & II Desalters

Agency	Contract Value (AFY) 2005-06	FY 2005-06	Contract Value (AFY) 2006-10	FY-2006-07	FY-2007-08	FY-2008-09	FY-2009-10 YTD[3]
City of Chino	4,500	4,274	5,000	4,690	5,456	5,045	5,040
City of Chino Hills	3,500	2,519	4,200	4,122	4,431	4,508	4,395
City of Ontario	2,000	426	5,000	5,153	5,415	5,253	5,505
Subtotal IEUA	**10,000**	**7,219**	**14,200**	**13,964**	**15,301**	**14,806**	**14,939**
Jurupa CSD	5,700	3,476	8,200	8,351	8,797	8,623	8,475
SARWC	700	291	1,200	1,229	1,285	1,271	1,275
City of Norco	1,000	894	1,000	1,020	1,195	979	996
Subtotal WMWD	**7,400**	**4,660**	**10,400**	**10,600**	**11,277**	**10,873**	**10,746**
Totals AFY	**17,400**	**11,879**	**24,600**	**24,564**	**26,578**	**25,679**	**25,685**

1. Desalter production 7/1/01 through 12/31/01
2. Desalter production 1/1/05 through 9/20/05
3. Desalter production through 07/01/2010

Chino I Expansion

An increased demand in contracted water deliveries to the City of Chino Hills, the City of Chino, and the City of Ontario necessitated the expansion of the Chino I Desalter. It was determined that an Ion Exchange Treatment System and Volatile Organics (VOCs) Stripping Towers should be added to increase the Chino I Desalter's product water flow from 9,000 AFY to 15,900 AFY.

The initial treatment process included blending of low TDS well water (bypass wells) with the RO treated well water that reduced the high nitrates (40 mg/L as N) and TDS (1,080 mg/L) to acceptable potable water levels. In April 2005, the facility added stripping towers to treat the water from the low TDS wells for removal of volatile organics (VOCs). The Ion Exchange System came online in July 2005. In 2007, new vessels were added to the existing R.O. trains bringing the total facility name plate capacity to 14,200 AFY.

Chino I Desalter Extraction Wells

Table 3-3 lists the original 11 wells that are operated to deliver water to the Chino I Desalter. Table 3-4 lists the three wells drilled for the Chino I Expansion; (also see Figure 3-1 for locations of the respective wells). In addition to the extraction wells, there are monitoring wells, raw

water pipelines, reservoirs, product water pipelines, pump stations, brine disposal lines and other offsite facilities that make up the Chino I and II Desalter systems.

Table 3-3 Chino I Desalter Extraction Wells (2001)

			Flow Capacity		
Well No.	Location of Well	Horsepower	GPM	MGD	AFY
I-1	15180 Euclid Avenue, Chino CA	75	600	0.86	964
I-2	15310 Euclid Avenue, Chino CA	40	300	0.43	482
I-3	15555 Euclid Avenue, Chino CA	75	600	0.86	964
I-4	7600 Kimball Avenue, Chino CA	40	600	0.86	964
I-5	8495 Kimball Avenue, Chino CA	125	1,200	1.72	1,927
I-6	8975 Kimball Avenue, Chino CA	125	1,200	1.72	1,927
I-7	9050 Kimball Avenue, Chino CA	125	1,200	1.72	1,927
I-8	15250 Walker Avenue, Riverside Co.	100	900	1.29	1,446
I-9	8550 Remington Street, Riverside Co	100	1,200	1.72	1,927
I-10	8720 Remington Street, Riverside Co	100	1,200	1.72	1,927
I-11	10500 Remington Street, Riverside Co	125	1,200	1.72	1,927

Table 3-4 CDA Chino I Expansion Extraction Wells (2005)*

			Flow Capacity		
Well No.	Location of Well	Horsepower	GPM	MGD	AFY
I-13	14156 Bay Circle, Riverside Co.	250	2,200	3.17	3,550
I-14	13844 Blue Ribbon Lane, Riverside Co.	250	2,000	2.88	3,225
I-15	6577 Cedar Creek Road	250	2,000	2.88	3,225

*Well No. 1-12 was drilled but never developed due to poor production characteristics.

Chino II Desalter

The Chino II Desalter was initiated by the CDA to provide 11,200 AFY of water deliveries to JCSD, the City of Ontario, the City of Norco and the Santa Ana River Water Company. The Chino II Desalter is located adjacent to the JCSD Headquarters at 11201 Harrel Street in Mira Loma, California. The Desalter was constructed and began operation in the summer 2006. Groundwater from the eight wells in the Mira Loma area are treated using a Reverse Osmosis (RO) system and an Ion Exchange (IX) treatment system. The plant production capacity consists of 6.0-mgd RO permeate blended with 4.0-mgd of (IX) effluent and 2.0-mgd of bypassed well water. This Desalter has a treatment capacity to produce 11,820 AFY of potable water. The water will be pumped to the Desalter distribution system for delivery to the municipal water supply systems of the CDA entities (Figure 3-2). An expansion to the Chino II Desalter is currently taking place and it is to be completed by the year 2011. The expansion will increase the Chino II Desalter capacity to 21,000 AFY. The eight Chino II Desalter wells are described in Table 3-5, their locations are shown on Figure 3-1.

Table 3-5 Chino II Desalter Extraction Wells (2006)

			Flow Capacity		
Well No.	**Location of Well**	**Horsepower**	**GPM**	**MGD**	**AFY**
II-1	5815 Sumner Ave. Miraloma, CA	300	2000	2.88	3226
II-2	3955 E Bellgrave Ave. Miraloma, CA	300	2000	2.88	3226
II-3	4155 E Bellgrave Ave. Miraloma, CA	300	2000	2.88	3226
II-4	5240 Hamner Ave. Miraloma, CA	300	2000	2.88	3226
II-6	5145 Wineville Ave. Miraloma, CA	300	2000	2.88	3226
II-7	5339 Wineville Ave. Miraloma, CA	250	1500	2.16	2419
II-8	5559 Wineville Ave. Miraloma, CA	200	1500	2.16	2419
II-9A	11766 Bellegrave Ave. Miraloma, CA	300	2000	2.88	3226

1 Well No. II-5 and Well No. II-9 were drilled but never developed due to poor production characteristics.

Pursuant to design and construction of the Chino I Expansion and Chino II Desalter Projects, Tom Dodson & Associates and RBF Consulting prepared the Chino I Expansion and Chino II Desalter Project Environmental Impact Report in November 2001.[6] The document was adopted in its final form with comments on January 25, 2002, by the CDA.

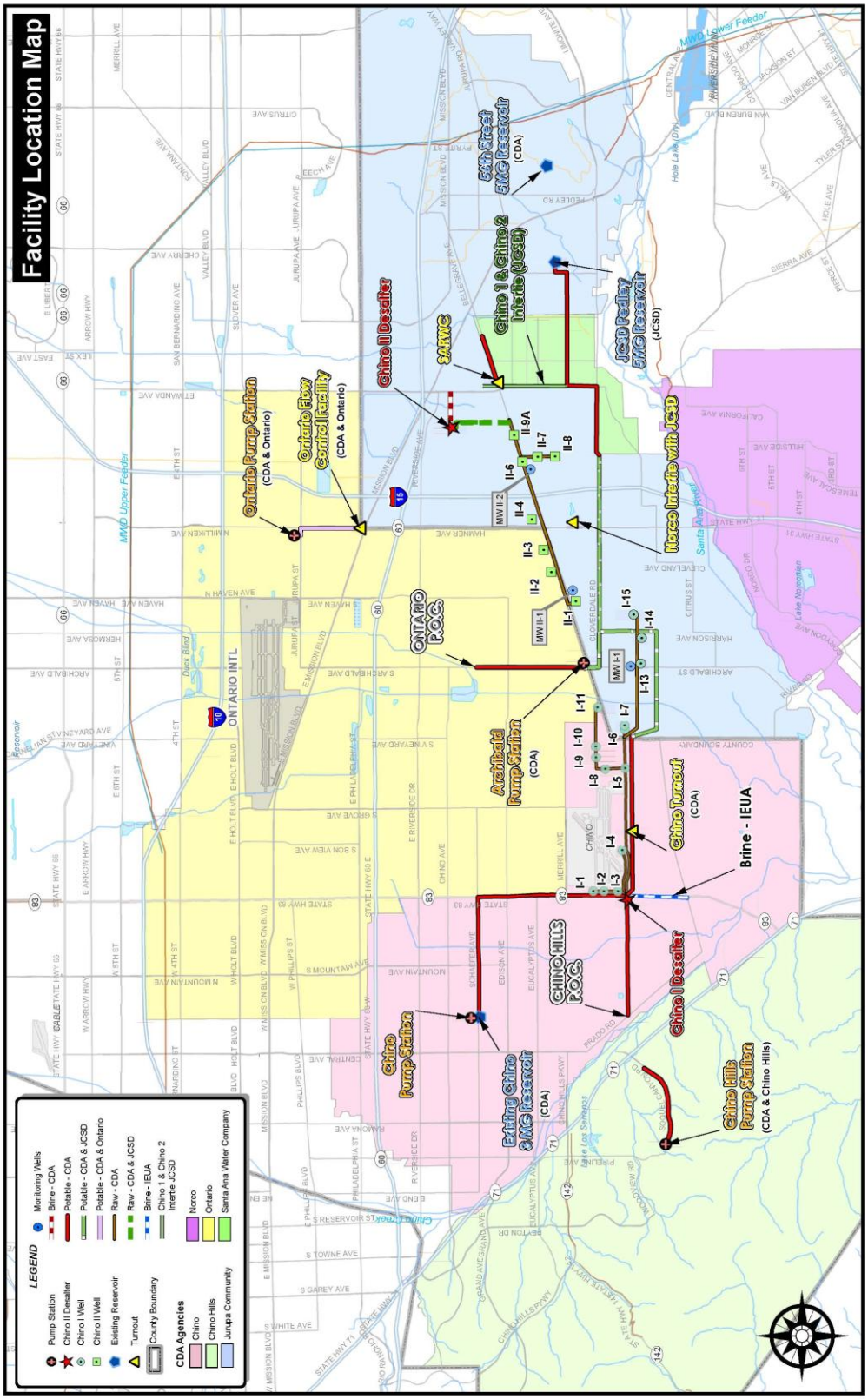
The most recent expansion studied in May 2010 aims to maximize the production capacity of the entire CDA facilities and reach 40,000 AFY. A Preliminary Design Report (PDR) has been prepared by Carollo Engineers. This PDR was adopted and accepted by the CDA Board in January 2011. Three options are being studied: A. The modification of Chino I to achieve a nameplate capacity of 14.2-mgd and expand Chino II to 20.5-mgd, B. Maintaining Chino I at existing capacity, while expanding Chino II to 22.7-mgd with an RO bypass of 2.2-mgd, and C. Maintaining Chino I at existing capacity and expanding Chino II to 22.7-mgd with a concentrate reduction of 2.2-mgd. It was voted on by the CDA to move ahead with Option C.

The water necessary to supply for this new expansion is scheduled to be produced from a new set of wells known as the Chino Creek Well Field (CCWF). The CCWF consists of up to 6 production wells and other monitoring wells. The proposed location of the CCWF is in the south west area of the Chino Basin, west of the Chino I Desalter as shown in Figure 1-3c. [2]

6

Chino I Desalter Expansion and Chino II Desalter Project EIR, November 2001, TDA & RBF Consulting.

EXHIBIT B


Facility Location Map
LEGEND
Pump Station
Chino II Desalter
Chino I Well
Chino II Well
Existing Reservoir
Turnout
County Boundary
Monitoring Wells
Brine - CDA
Potable - CDA
Potable - CDA & JCSD
Potable - CDA & Ontario
Raw - CDA
Raw - CDA & JCSD
Brine - IEUA
Chino 1 & Chino 2 Intertie JCSD
CDA Agencies
Chino
Chino Hills
Jurupa Community
Norco
Ontario
Santa Ana Water Company
Ontario Pump Station (CDA & Ontario)
Ontario Flow Control Facility (CDA & Ontario)
Chino II Desalter
SAWC
Chino 1 & Chino 2 Intertie (JCSD)
6th Street 5MG Reservoir (CDA)
Jurupa Reservoir 5MG Reservoir (JCSD)
Norco Interfie with JCSD
ONTARIO INTL
ONTARIO POC
Archibald Pump Station (CDA)
Chino Turnout (CDA)
Brine - IEUA
CHINO HILLS POC
Chino Pump Station
Existing Chino 5 MG Reservoir (CDA)
Chino II Desalter
Chino Hills Pump Station (CDA & Chino Hills)
MWD Upper Feeder
MWD Lower Feeder
Santa Ana River
Hole Lake Drain
Chino Creek
Dark Blvd
MW II-2
MW II-1
MW I-1
II-1
II-2
II-3
II-4
II-6
II-7
II-8
II-9A
I-1
I-2
I-3
I-4
I-5
I-6
I-7
I-8
I-9
I-10
I-11
I-13
I-14
I-15

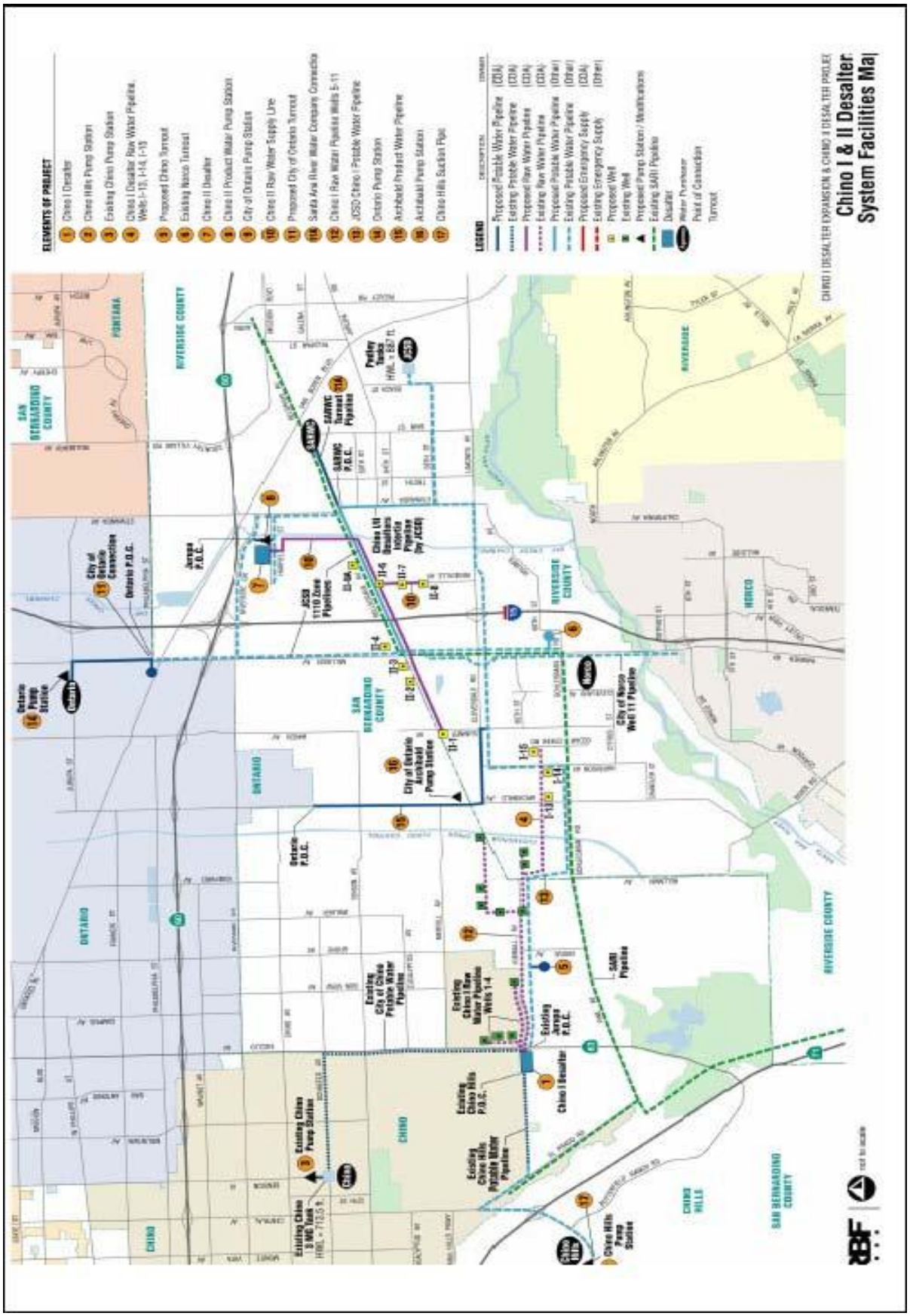

ELEMENTS OF PROJECT
1 Chino I Desalter
2 Chino Hills Pump Station
3 Existing Chino Pump Station
4 Chino I Desalter Raw Water Pipeline, Wells I-13, I-14, I-15
5 Proposed Chino Turnout
6 Existing Norco Turnout
7 Chino II Desalter
8 Chino II Product Water Pump Station
9 City of Ontario Pump Station
10 Chino II Raw Water Supply Line
11 Proposed City of Ontario Turnout
14 Santa Ana River Water Company Connection
12 Chino I Raw Water Pipeline Wells 5-11
13 JCSD Chino I Potable Water Pipeline
14 Ontario Pump Station
15 Archibald Product Water Pipeline
16 Archibald Pump Station
17 Chino Hills Suction Pipe
LEGEND
Proposed Potable Water Pipeline (CDA)
Existing Potable Water Pipeline (CDA)
Proposed Raw Water Pipeline (CDA)
Existing Raw Water Pipeline (CDA)
Proposed Potable Water Pipeline (Other)
Existing Potable Water Pipeline (Other)
Proposed Emergency Supply (CDA)
Existing Emergency Supply (Other)
Proposed Well
Existing Well
Proposed Pump Station / Modifications
Existing SARI Pipeline
Desalter
Water Purveyor
Point of Connection
Turnout
CHINO I DESALTER EXPANSION & CHINO II DESALTER PROJECT
Chino I & II Desalter System Facilities Map
RIVERSIDE COUNTY
SAN BERNARDINO COUNTY
FONTANA
ONTARIO
CHINO
CHINO HILLS
NORCO
RIVERSIDE
Jurupa P.O.C.
Ontario P.O.C.
City of Ontario Connection
Ontario Pump Station
Archibald Pump Station
City of Norco Well 11 Pipeline
Chino I Desalter
Chino Hills P.O.C.
Chino Hills Pump Station
Existing Chino Pump Station
Existing Chino II Wells Tank
Existing City of Chino Potable Water Pipeline
Existing Chino I Raw Water Pipeline Wells I-1-4
Existing Chino Hills Potable Water Pipeline
SARI Pipeline
SARWC Turnout Pipeline
SARWC P.O.C.
Pumley Tanks
JCSD 1110 Zone Pipelines
Chino I/II Desalters Supply Pipeline (by JCSD)
not to scale

Figure 3-2